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     FILE 'REGISTRY' ENTERED AT 16:15:00 ON 09 SEP 2008
L1                STRUCTURE UPLOADED
L2              0 S L1
L3              2 S L1 SSS FULL

     FILE 'CAPLUS' ENTERED AT 16:16:24 ON 09 SEP 2008
L4              6 S L3
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=> file registry
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

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STRUCTURE FILE UPDATES:    8 SEP 2008  HIGHEST RN 1047724-15-1
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Uploading C:\Program Files\STNEXP\Queries\10534660alkylmethionine.str
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chain nodes :
1  2  3  4  5  6  7  8  9  10  11  12  13
chain bonds :
1-2  2-3  2-10  2-13  3-4  4-5  5-6  5-7  5-9  7-8  10-11  10-12
exact/norm bonds :
2-10  2-13  5-7  5-9
exact bonds :
1-2  2-3  3-4  4-5  5-6  7-8  10-11  10-12


Match level :
1:CLASS  2:CLASS  3:CLASS  4:CLASS  5:CLASS  6:CLASS  7:CLASS  8:CLASS  9:CLASS
10:CLASS  11:CLASS  12:CLASS  13:CLASS
Generic attributes :
13:
Saturation             : Saturated
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Element Count :
Node 13: Limited
    C,C1-8




L1      STRUCTURE UPLOADED

=> s l1
SAMPLE SEARCH INITIATED 16:15:31 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -       12 TO ITERATE

100.0% PROCESSED       12 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:           33 TO      447
PROJECTED ANSWERS:               0 TO        0

L2            0 SEA SSS SAM L1

=> d l1
L1 HAS NO ANSWERS
L1              STR
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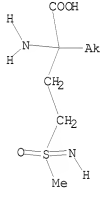


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Structure attributes must be viewed using STN Express query preparation.


=> s l1 sss full
FULL SEARCH INITIATED 16:16:11 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -      169 TO ITERATE

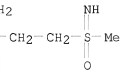
100.0% PROCESSED      169 ITERATIONS                               2 ANSWERS
SEARCH TIME: 00.00.01

L3            2 SEA SSS FUL L1

=> d l3 scan

L3   2 ANSWERS   REGISTRY  COPYRIGHT 2008 ACS on STN
```

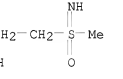
IN Isovaline, 4-(S-methylsulfonimidoyl)- (9CI)
MF C6 H14 N2 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L3 2 ANSWERS REGISTRY COPYRIGHT 2008 ACS on STN
IN Butanoic acid, 2-amino-2-ethyl-4-(S-methylsulfonimidoyl)- (9CI)
MF C7 H16 N2 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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=> file caplus
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	178.82	179.03

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FILE COVERS 1907 - 9 Sep 2008 VOL 149 ISS 11
FILE LAST UPDATED: 8 Sep 2008 (20080908/ED)

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=> s l3
L4 6 L3

=> d l4 1-6 ti bs bib
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FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
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SCAN must be entered on the same line as the DISPLAY,
e.g., D SCAN or DISPLAY SCAN)
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IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

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SIBIB ------- IBIB, no citations

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its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its

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              structure diagram, plus NTE and SEQ fields
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FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

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IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
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ISTD -------- STD, indented with text labels

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OIBIB ------- OBIB, indented with text labels

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              containing hit terms
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HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
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            its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

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an arrow prompt (=>).  Examples of formats include: TI; TI,AU; BIB,ST;
TI,IND; TI,SO.  You may specify the format fields in any order and the
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specification.

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FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC
to view a specified Accession Number.
ENTER DISPLAY FORMAT (BIB):ti abs bib

L4   ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2008 ACS on STN
TI   Anti-microbial agents derived from methionine sulfoximine analogues and
     use for treating mycobacterial infections
AB   Novel antimicrobial compns. containing analogs of L-methionine-SR-sulfoximine
     (MSO) that are effective in treating intracellular pathogen infections are
     provided.  Specifically, the compns. provided are MSO analogs having
     superior antimicrobial activity with significantly less toxicity as
     compared to MSO.  These MSO analogs are suitable for use in treating
     infection in animals including primates, cows, pigs, horses, rabbits,
     mice, rats, cats, and dogs.  Moreover, the MSO analogs are ideally suited
     for treating infections caused by the genus Mycobacterium.  Addnl.,
     methods for using the novel MSO analogs are also provided.
AN   2004:452975  CAPLUS <<LOGINID::20080909>>
DN   141:12262
TI   Anti-microbial agents derived from methionine sulfoximine analogues and
     use for treating mycobacterial infections
IN   Harth, Gunter; Griffith, Owen W.; Horwitz, Marcus A.
PA   Regents of the University of California, USA
SO   PCT Int. Appl., 40 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     --------------      ----   --------    --------------------    --------
PI   WO 2004045539        A2    20040603    WO 2003-US36705         20031117
     WO 2004045539        A9    20040805
     WO 2004045539        A3    20041111
          W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
              CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
              GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
              LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
              PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ,
              UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
          RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
              IT, LU, MC, NL, PT, RO, SE, SI, SK, TR
     AU 2003295579        A1    20040615    AU 2003-295579          20031117
     US 20040157802       A1    20040812    US 2003-715679          20031117
     US 20060142251       A1    20060629    US 2005-534660          20051128
PRAI US 2002-426502P      P     20021115
     US 2002-430407P      P     20021202
     WO 2003-US36705      W     20031117
OS   MARPAT 141:12262
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L4 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
TI Pyruvate analog adducts with NAD as lactate dehydrogenase inhibitors
AB Adducts of pyruvate and NAD+ adducts are lactate dehydrogenase inhibitors that can pass through the blood-brain barrier and are of use in the treatment of primary systemic lactic acidosis are prepared and characterized. A series of Na arylidene pyruvates were prepared and the adducts with NAD+ prepared by standard chemical These were then tested for inhibition of beef heart and rat brain lactate dehydrogenases. An NAD-pyruvate reduced the activity of the beef heart enzyme to 90% of control values and reduced the activity of the rat brain enzyme to 48% of controls in the presence of 0.24 mM pyruvate. An aldehyde analog was similarly active in the nanomolar range. Inhibition of lactate dehydrogenase activity in synaptosomes was also demonstrated.
AN 1991:38443 CAPLUS <<LOGINID::20080909>>
DN 114:38443
OREF 114:6623a,6626a
TI Pyruvate analog adducts with NAD as lactate dehydrogenase inhibitors
IN Cooper, Arthur J. L.
PA Cornell Research Foundation, Inc., USA
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4950602	A	19900821	US 1987-16894	19870220
PRAI US 1987-16894		19870220		
OS MARPAT 114:38443				

L4 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
TI Amino acid sulfoximines: α-ethylmethionine sulfoximine
AB α-Ethylmethionine sulfoxime, HO2CCEt(NH2)CH2CH2S(O)Me:NH, was prepared by treatment of HO2CCEt(NH2)CH2CH2SMe (I) with HCl. I was prepared by treatment of EtCOCH:CH2 with MeSH to give EtCOCH2CH2SMe which was converted to a hydantoin derivative with (NH4)2CO3 and NaCN and the product hydrolyzed to I.
AN 1988:132274 CAPLUS <<LOGINID::20080909>>
DN 108:132274
OREF 108:21719a,21722a
TI Amino acid sulfoximines: α-ethylmethionine sulfoximine
AU Griffith, Owen W.
CS Med. Coll., Cornell Univ., New York, NY, 10021, USA
SO Methods in Enzymology (1987), 143(Sulfur Sulfur Amino Acids), 286-91
CODEN: MENZAU; ISSN: 0076-6879
DT Journal
LA English

L4 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
TI Inhibition of glutathione biosynthesis by prothionine sulfoximine (S-n-propyl homocysteine sulfoximine), a selective inhibitor of γ-glutamylcysteine synthetase
AB DL-Prothionine SR-sulfoximine [70085-86-8] and α-methyl-DL-prothionine-SR-sulfoximine [70056-05-2] were prepared and found to markedly inhibit γ-glutamylcysteine synthetase [9023-64-7] but to not significantly affect glutamine synthetase [9023-70-5]. After injection of prothionine sulfoximine into mice, the level of kidney glutathione [70-18-8] decreased rapidly to .apprx.20% of the control level indicating that a large fraction, rather than a small pool, of glutathione participates in rapid turnover. The rapid decline of the glutathione

level that occurs after inhibition of glutathione synthesis reflects the normal rate of intracellular glutathione utilization by the γ-glutamyl cycle. A number of related sulfoximines were synthesized and tested as inhibitors of glutamine and γ-glutamylcysteine synthetases.
AN 1979:198299 CAPLUS <<LOGINID::20080909>>
DN 90:198299
OREF 90:31455a,31458a
TI Inhibition of glutathione biosynthesis by prothionine sulfoximine (S-n-propyl homocysteine sulfoximine), a selective inhibitor of γ-glutamylcysteine synthetase
AU Griffith, Owen W.; Anderson, Mary E.; Meister, Alton
CS Med. Coll., Cornell Univ., New York, NY, USA
SO Journal of Biological Chemistry (1979), 254(4), 1205-10
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English

L4 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
TI Differential inhibition of glutamine and γ-glutamylcysteine synthetases by α-alkyl analogs of methionine sulfoximine that induce convulsions
AB α-Methyl-DL-methionine (SR)-sulfoximine [66735-67-9] and α-ethyl-DL-methionine (SR)-sulfoximine [66735-68-0], like L-methionine (SR)-sulfoximine [15985-39-4], induced convulsions in mice and inhibited glutamine synthetase [9023-70-5] irreversibly; α-ethylmethionine sulfoximine was .apprx.50% as inhibitory as methionine sulfoximine and α-methylmethionine sulfoximine. However, whereas α-methylmethionine sulfoximine and methionine sulfoximine inhibited γ-glutamylcysteine synthetase [9023-64-7] markedly, α-ethylmethionine sulfoximine did not, nor did administration of the α-Et analog produce the decrease in tissue glutathione [70-18-8] levels found after giving methionine sulfoximine or its α-Me analog. The α-alkyl methionine sulfoximine analogs cannot be catabolized via the corresponding α-keto or α-imino acids, and, like other α-substituted amino acids, are probably not metabolized to a significant extent in vivo; this suggests that the amino acid sulfoximine mols. themselves, rather than their metabolites, are directly involved in the induction of convulsions. Possible explanations for the reported lack of correlation between the occurrence of convulsions and the levels of glutamine synthetase activity (and its substrates and product) are considered.
AN 1978:500916 CAPLUS <<LOGINID::20080909>>
DN 89:100916
OREF 89:15375a,15378a
TI Differential inhibition of glutamine and γ-glutamylcysteine synthetases by α-alkyl analogs of methionine sulfoximine that induce convulsions
AU Griffith, Owen W.; Meister, Alton
CS Dep. Biochem., Cornell Univ. Med. Coll., New York, NY, USA
SO Journal of Biological Chemistry (1978), 253(7), 2333-8
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English

L4 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2008 ACS on STN
TI Sulfur-containing amino acids
GI For diagram(s), see printed CA Issue.
AB MeCH:CHCHO (140 g.) and 96 g. MeSH in the presence of 2 drops of piperidine stirred 0.5 hr. at 5-10° and 3 hrs. at room temperature, the mixture treated with an addnl. 28 g. MeSH, heated about 1 hr. at 90°,

diluted with 500 cc. Et2O, washed with dilute HCl and H2O, dried, and evaporated,
and the residue distilled gave 201 g. MeSCHMeCH2CHO (I), b23 80°. AcCH:CH2 (27 g.) and 18 g. MeSH yielded 35.4 g. Ac(CH2)2SMe, b55 106°, nD25 1.4711. I (48.5 g.), 113 g. (NH4)3SO3, 25.5 g. NaCN, 335 cc. EtOH, and 335 cc. H2O heated 5 hrs. with stirring at 55°, the mixture concentrated to about 300 cc., treated cautiously with 50 cc. concentrated
HCl, heated 7 min. at about 90°, refrigerated, and filtered, and the residue washed with 200 cc. H2O yielded 49 g. 5-(β-benzylmercapto)propylhydantoin, m. 117-18°(from EtOAc). Similarly were prepared the following compds. RR'C.CO.NH.CO.NH (R, R', m.p., and % yield given): MeS(CH2)2, Me, 109.5-10.5°, 93.8; MeSCHMeCH2, H, 191-2°, 50.1; MeSCHPhCH2, H, 173-4°, 491.
S-Benzyl-4-methylhomocysteine (7.17 g.), m. 222.5-3.5° (decomposition) (from H2O) (obtained in 94% yield from the hydantoin) (0.69,0.74, 0.93) (the figures given in parentheses through out this abstract represent the Rf values of the resp. compds. obtained by ascending paper chromatography with BuOH-AcOH, lutidine-collidine, and PhOH-H2O, resp.) in 300 cc. liquid NH3 treated with about 1.7 g. Na, the solution decolorized with about 1 g. NH4Cl, treated with 5 cc. MeI, and evaporated, the residue treated with 125 cc. H2O, washed with Et2O, filtered, neutralized with concentrated HCl to pH about 6, concentrated to about 50 cc., diluted with 50 cc. Me2CO, and refrigerated, and the crystalline deposit recrystd. from aqueous MeOH yielded 4.1
g. MeSCHMeCH2CH(NH2)CO2H (II), m. 236-7° (decomposition), (0.44, 0.53, 0.79). Similarly were prepared: MeS(CH2)2CMe(NH2)CO2H, 61%, m. 284-5° (decomposition) (from aqueous MeOH), (0.45, 0.50, 0.77); MeSCHPh(CH2)2CH(NH2)CO2H, 49.3%, m. 201-2° (decomposition) (from H2O).
BzCH2SMe (21.8 g.) in 50 cc. dry Et2O added with stirring to 1.4 g. LiAlH4 in 10 cc. dry Et2O, the mixture refluxed 1 hr. with stirring, cooled, and treated with stirring with 200 cc. ice water and 100 cc. 5N H2SO4, the aqueous layer washed with Et2O, the combined Et2O solns. washed, dried, and evaporated under a jet of dry air, and the residue distilled gave 18.4 g. MeSCH2CH(OH)Ph (III), b1.8 113-14.5°. III (170 mg.) treated with MeI yielded III. MeI, m. 134-5° (decomposition). III (15.8 g.) in 25 cc. dry CHCl3 treated with cooling with 9.2 g. SOCl2 in 15 cc. dry CHCl3, the mixture cooled 0.5 hr., kept at room temperature overnight and evaporated, the residue heated gently with 5 cc. dry CHCl3 and 5 cc. SOCl2, and the mixture distilled gave 14.3 g. MeSCH2CHClPh (IV), b2.8 106-7°, nD25 1.5692.
AcNHCH(CO2Et)2 (11.6 g.) and 200 mg. KI added with stirring to 1.23 g. Na in 100 cc. absolute EtOH, the mixture treated with 10 g. IV in 1 portion, stirred 2 hrs. at room temperature, refluxed 5 hrs., and filtered hot, the residue washed with about 50 cc. hot EtOH, the combined alc. solns. evaporated to dryness in vacuo, the residual oil kept at room temperature overnight, and the crystalline material washed with dilute HCl and H2O and dried in vacuo over KOH pellets yielded 16 g. MeSCH2CHPhC(NHAc)(CO2Et)2 (V), m. 95-6° (from Et2O-pentane). Crude V (14.4 g.), 40 cc. H2O, and 10 cc. concentrated HCl
refluxed 6 hrs. with stirring, the mixture treated with 40 cc. H2O and 10 cc. concentrated HCl, refluxed 1.5 hrs. with stirring, cooled to room temperature, the
solid refluxed 8 hrs. with stirring with 80 cc. glacial AcOH and 10 cc. concentrated HCl, treated with Norit, and filtered, the residue washed with H2O,
the combined filtrates evaporated in vacuo, the residue (about 10 g.) triturated with 50 cc. Me2CO and filtered, and the residue washed with Me2CO and dried yielded 5 g. MeSCH2CHPhCH(NH2)CO2H.HCl (VI.HCl), m. 208-9° (decomposition); the Me2CO solns. combined and evaporated to dryness, the residue refluxed 6.5 hrs. with 25 cc. H2O, 25 cc. glacial AcOH, and 10 cc. concentrated HCl, the solution evaporated to dryness in vacuo, the residue washed

with Me2CO and neutralized with AmNH2, and a 1-g. portion dissolved in 8 cc. H2O and neutralized with AmNH2 to pH 6, diluted with 25 cc. Me2CO, and filtered, and the residue washed with 15 cc. Me2CO yielded 300 mg. VI; the filtrate diluted with Me2CO gave a 2nd crop, 350 mg. MeSH (14 g.) passed with stirring and cooling into 1.2 g. Na in 150 cc. absolute MeOH, the mixture treated with stirring and cooling with 50 g. Me α-benzamidosenecioate, diluted with 200 cc. absolute MeOH and 200 cc. dry C6H6, stirred 1 hr. at room temperature, allowed to stand overnight, treated with 3.12 g. glacial AcOH, and evaporated to dryness in vacuo at room temperature, the residue washed with warm dry C6H6, the C6H6 evaporated, the residue (58 g.), 300 cc. 85% HCO2H, 300 cc. concentrated HCl, and 300 cc. H2O refluxed 6 hrs., the solution concentrated to about 50 cc., washed with Et2O, neutralized with AmNH2 to pH 6, diluted with 350 cc. Me2CO, and refrigerated 2 days, and the white crystals washed with 300 cc. Me2CO and 200 cc. Et2O yielded 16.8 g. S-methylpenicillamine, m. 281-2° (0.38, 0.50, 0.80); it was also obtained in the same manner from 2-phenyl-4-isopropylidene-5-oxazolone and 30 g. MeSH. MeSH (16 g.) passed into 1.2 g. Na in 300 cc. absolute MeOH, the solution treated with cooling and stirring with 62.3 g. 2-phenyl-4-benzal-5-oxazolone in 500 cc. warm, dry C6H6, the mixture stirred about 1 hr., kept at room temperature, treated with 3.12 g. glacial AcOH, and evaporated to dryness in vacuo, the residue treated with 100 cc. warm C6H6 and filtered, the filtrate diluted with 100 cc. warm C6H6 and 500 cc. pentane, and chilled, and the deposit washed with 150 cc. pentane yielded 74 g. PhCH(SMe)CH(NHBz)CO2Me (VII), m. 97-8.5° (from EtOAc-pentane). Crude VII (32.9 g.) hydrolyzed with 150 cc. H2O, 150 cc. concentrated HCl, and 150 cc. 90% HCO2H, the solution concentrated in vacuo to near dryness, and the precipitate washed with three 100-cc. portions H2O, dissolved in 75 cc. H2O, neutralized to pH 6 with AmNH2, and chilled yielded 12.5 g. S-methyl-3-phenylcysteine, m. 178-9° (decomposition) (0.51, 0.65, 0.88). The following sulfoxides were prepared by oxidation of the appropriate sulfides with H2O2 by the method of Toennies and Kolb (C.A. 33, 5359.9) (% yield, m.p., and Rf values given): PhCH2S(O)CHMeCH2CH(NH2)CO2H, 64.7, 214-15° (decomposition) (from H2O), (0.45, 0.60, 0.92); MeS(O)CH2CH2CMe(NH2)CO2H, 91.8, 239.5-40.5° (decomposition) (from aqueous MeOH), (0.14, 0.35, 0.77); MeS(O)CHMeCH2CH(NH2)CO2H (VIII), 84.4, 213.5-14.5° (from aqueous MeOH), (0.13, 0.40, 0.80); MeS(O)CH2CHPhCH(NH2)CO2H, 74.4, 205-6° (decomposition) (from aqueous MeOH), (0.33, 0.59, 0.87); MeS(O)CHPhCH2CH(NH2)CO2H, 87.7, 189-90° (decomposition) (from aqueous MeOH), (0.33, 0.47, 0.85); Me2CHCH[S(O)Me]CH(NH2)CO2H, 77.7, 166-7° (from aqueous MeOH), (0.14, 0.40, 0.76); PhCH[S(O)Me]CH(NH2)CO2H, 73.2, 147-8° (decomposition) (from aqueous MeOH), (0.29, 0.54, 0.82). VIII (600 mg.), 3 cc. H2O, 2 cc. MeOH, 0.2 cc. concentrated HCl, and 2 cc. 30% H2O2 refluxed 2 hrs., treated with 1 cc. 30% H2O2, refluxed again 2 hrs., neutralized with AmNH2 to pH 6.5, diluted with 100 cc. Me2CO and filtered, and the residue washed with 50 cc. Me2CO yielded 550 mg. MeS(O2)CHMeCH2CH(NH2)CO2H, m. 230-1° (decomposition) (from aqueous MeOH), (0.14, 0.50, 0.72). In the same manner was prepared PhCH2S(O2)CH2CH2CH(NH2)CO2H, 70.6%, m. 229-30° (decomposition) (from H2O), (0.50, 0.65, 0.84). The following sulfones were prepared by the oxidation on the appropriate sulfides with H2O2 in the presence of NH4 molybdate and HClO4 by the method of Toennies and Kolb (C.A. 35, 6571.1) (% yield, m.p., and Rf values given): MeS(O2)CH2CH2CMe(NH2)CO2H, 73.6, 288-9° (decomposition) (from aqueous MeOH), (0.16, 0.45, 0.65); MeS(O2)CH2CHPhCH(NH2)CO2H (IX), 50.8, 222-3° (decomposition) (from H2O), (0.32, 0.61, 0.79); MeS(O2)CHPhCH2CH(NH2)CO2H (X), 95.4, 196.5-7.5°

(decomposition), (0.37, 0.55, 0.79); Me2CHCH[S(O2)Me]CH(NH2)CO2H, 77.7, 166-7° (from aqueous MeOH), (0.14, 0.53, 0.68); MeS(O2)CHPhCH(NH2)CO2H, 51.2, 141-2°(decomposition) (from aqueous MeOH), (0.30, 0.52, 0.70). VIII (6.0 g.) treated dropwise with stirring at 3° with 10.4 cc. concentrated H2SO4, the mixture heated with stirring to 45°, treated during 1 hr. at 48° with 54 cc. 1.4N HN3 in CHCl3, then heated with stirring 5 hrs. at 48°, treated with 13.5 cc. HN3 solution, heated 5 hrs. with stirring at 50°, stirred overnight at room temperature, poured with stirring onto 75 g. crushed ice, neutralized with solid Ba(OH)2 to about pH 2.5 then to pH 5 with solid BaCO3, and centrifuged, the supernatant decanted, the residue mixed with H2O, centrifuged, and decanted, this operation repeated until free of amino acid, the combined aqueous solns. concentrated in vacuo at 50° to about 100 cc., treated with C, and filtered, and the filtrate concentrated to about 40 cc., filtered, and evaporated to dryness yielded 6.4 g. MeS(:NH)CHMeCH2CH(NH2)CO2H, m. 199-200° (decomposition) (from aqueous MeOH), (0.08, 0.38, 0.71). In the same manner was prepared: MeS(:NH)CH2CH2CHMe(NH2)CO2H,100, 199-200° (decomposition) (from aqueous MeOH), (0.10, 0.35, 0.67). IX (100 mg.) treated with about 60 mg. N-bromosuccinimide gave MeS(O2)CH2CHPhCHO, isolated as the 2,4-dinitrophenylhydrazone, m. 188-9° (decomposition). X gave similarly MeS(O2)CHPhCH2CHO, isolated as the 2,4-dinitrophenylhydrazone, decomposed at 196-8° with a change from yellow to red at 169°. Only 4 of the amino acids suppressed the multiplication of T2 bacteriophage of Escherichia coli strain A.T.C.C. number 11303 at pH 7 and 37° at 100 p.p.m. or less.

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